Data Analysis Project

Overview

We will be working on this project in partners (groups of two), where you will use what you have learned in chapter 8 to analyze various high school data from each state in 2013-14.

Locate the file "*Data Analysis Project.xlsx*". Use that workbook to answer the following questions. You will complete all calculations, answer all questions and create the graphs needed in this excel file.

When creating graphs, make sure all graphs include chart titles, axis titles, and a key. Remember, your graphs should be able to stand alone without the need for additional information in order to be understood.

Part 1: Completion Rates

1. Locate the completion rate data for each state on the "*Completion Rate by State*" tab. Calculate the mean, median, mode, maximum, minimum, range, and standard deviation for the completion rates. Use Excel formulas to calculate the values.

2. Using a minimum of three sentences, explain what the statistics calculated in the previous question tell you about the high school completion rates in 2013-14. Type your answer in the box provided on the Excel file.

3. Create a grouped frequency distribution for the completion rate data. The first class should start at the minimum and use a class width of 5. Create the frequency table in the same way we did in the Excel Lesson.

4. Create a histogram for the completion rates. Be sure to change the bin width of the histogram to match the class width in the frequency table. Insert the graph on the excel file in the provided space.

5. Using a minimum of three sentences, explain what the histogram tells you about high school completion rates in 2013-14.

Part 2: Pupil/Teacher Ratio

1. Locate the completion rate data for each state on the "*Pupil-Teacher Ratio*" tab. Calculate the mean, median, mode, maximum, minimum, range, and standard deviation for the pupil/teacher ratios. Use Excel formulas to calculate the values.

2. Using a minimum of three sentences, explain what the statistics calculated in the previous question tell you about the high school completion pupil/teacher ratios in 2013-14. Type your answer in the box provided on the Excel file.

3. Create a grouped frequency distribution for the pupil/teacher ratio data. The first class should start at the minimum and use a class width of 4. Create the frequency table in the same way we did in the Excel Lesson.

4. Create a histogram for the pupil/teacher ratios. Be sure to change the bin width of the histogram to match the class width in the frequency table. Insert the graph on the excel file in the provided space.

5. Using a minimum of three sentences, explain what the histogram tells you about high school pupil/teacher ratios in 2013-14.

Part 3: Average Teacher's Salary

1. Locate the average teacher's salary data for each state on the "*Average Teacher's Salary*" tab. Calculate the mean, median, mode, maximum, minimum, range, and standard deviation for the average teacher's salary data. Use Excel formulas to calculate the values.

2. Using a minimum of three sentences, explain what the statistics calculated in the previous question tell you about the average teacher's salary in 2013-14. Type your answer in the box provided on the Excel file.

3. Create a bar graph and pie chart using the average teacher's salary data by state. Insert these graphs in the provided space.

4. Using a minimum of three sentences, explain why these are not good displays for the data.

Part 4: Average Teacher's Salary by Region

1. Locate the sheet, "*Avg Teacher's Salary by Region*". Use the data in the table titled 'Average Teacher's Salary by Region 2013-14' to create a create a bar graph and a pie chart. Be sure to change the layout of the pie chart to be more informative. Insert these graphs in the provided space.

2. Using a minimum of three sentences, explain why these displays are better than those in part 3. Then explain what these graphs tell you about the average teacher's salary per region.

3. Use the data in the table titled 'Average Teacher's Salary by Region' to create side-by-side bar graph that is grouped by region with a bar for each year (2013-14, 2018-19). Then create a stacked bar graph where there is a bar for each year (and each bar is split by region). Insert these graphs in the provided space.

4. Compare and contrast these two graphs to the bar graph from question 1. What do each of these tell you about the average teacher's salary by region for the two different years. Explain using a minimum of five sentences. Type your answer in the box provided on the excel file.

Part 5: Data by Region

1. Locate the sheet, "*Data by Region*". Use the data in each table to make a bar graph for each table (you will have three separate bar graphs). Insert the graphs in the provided space.

2. Compare the Average Completion Rate by Region bar graph to each of the other bar graphs. Do you notice any trends in average completion rate based on average teacher's salary or average pupil/teacher ratio? Explain using a minimum of three sentences. Type your answer in the box provided on the excel file.

Submission

Submission instructions

- The final submission for this is a completed version of the 'Data Analysis Project - Submission Template' PowerPoint with the group's work.
    - Follow the instructions within the template (which can be found on Canvas).

- One submission per group. I recommended having one group member in charge of putting everything together.
    - The completed PowerPoint must be submitted via email to your professor (colton.gearhart@bsu.edu) by the assigned due date.